AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application:

Listing of Claims:

1. (Currently Amended) A method ~~for operating~~ to operate a decoder, comprising:

monitoring, during operation of the decoder on a signal received from a channel, the value of at least one extrinsic value; and

based on the monitored at least one value, determining whether the signal comprises a valid code word or comprises only noise.

2. (Original) A method as in claim 1, where the decoder comprises one of a LogMap or a MaxLogMap turbo decoder.

3. (Currently Amended) A method as in claim 1, where

during rounds of decoding ~~rounds~~ absolute values of extrinsic values tend to increase, provided that the input signal contains a valid code word, as opposed to when the input signal contains only noise, and where

determining accurately distinguishes a valid code word from noise, and also obtains information that is indicative of the quality of ~~the~~ a decoding process.

4. (Currently Amended) A method ~~as in claim 1,~~ to operate a decoder when receiving a signal through a channel, comprising:

monitoring, during operation of the decoder on a signal received from a channel, the value of at least one extrinsic value; and

based on the monitored at least one value, determining whether the signal comprises a valid code word or comprises only noise, where

the decoder comprises a turbo decoder, and where the turbo decoder comprises a detector that considers at least one inequality where:

1) $SE_AE_B(L) \leq const1 \text{ X } SE_AE_B(1)$;
2) $SE_AE_B(L) \leq const2 \text{ X } S$;
3) $SE_A(L) \leq const3 \text{ X } S$;
4) $SE_B(L) \leq const3 \text{ X } S$;
5) $E_A(L) \leq const4 \text{ X } E_A(1)$;
6) $E_B(L) \leq const4 \text{ X } E_B(1)$;
7) $E_AE_B(L) \leq const4 \text{ X } E_AE_B(1)$;
8) $E_A(L) \leq const5 \text{ X } S$; and
9) $E_B(L) \leq const5 \text{ X } S$;

where L represents the number of a last turbo decoder round, where $\leq$ represents 'less than or equal to', where X represents times (multiplication), and where const represents a constant value, where if any one of inequalities are found to be true, then it is determined that the received signal does not comprise a valid turbo coded code word, and where

$SE_AE_B(n)$ denotes a sum of absolute values of soft values after an n^{th} turbo round;
$E_AE_B(n)$ denotes a sum of absolute values of sums of extrinsic values of A-parities and extrinsic values of B-parities after an n^{th} turbo round;
$E_A(n)$ denotes a sum of absolute values of extrinsic values of A-parities after the n^{th} turbo round;
$E_B(n)$ denotes a sum of absolute values of extrinsic values of B-parities after the n^{th} turbo round;
$SE_A(n)$ denotes a sum of absolute values of sums of systematic samples and extrinsic values of A-parities after the n^{th} turbo round;

$SE_B(n)$ denotes a sum of absolute values of sums of systematic samples and extrinsic values of B-parities after the n^{th} turbo round; and
S denotes a sum of absolute values of systematic samples.

5. (Original) A method as in claim 4, where a sum of absolute values of systematic samples is at least one of replaced and complemented by a sum of absolute values of parity samples.

6. (Original) A method as in claim 4, where const1 equals about 1.125, where const2 equals about 1.5, where const3 equals about 1.25, where const4 equals about 2, and where const5 equals about 0.8.

7. (Original) A method as in claim 4, where the threshold constants const1, const2, const3, const4, and const5 are greater when applying an inequality as a quality detector than as a noise/signal detector.

8. (Currently Amended) A method as in claim 1, where said decoder comprises part of a ~~WCDMA~~ wideband code division multiple access (WCDMA) user equipment.

9. (Original) A method as in claim 4, where the value of const is a function of a coding rate.

10. (Currently Amended) A decoder having an input for coupling to a signal received through a channel, comprising:

means for monitoring, during operation of the decoder on a signal received from ~~a~~ the channel, the value of at least one extrinsic value; and

means, responsive to the monitored at least one value, for determining whether the signal comprises a valid code word or comprises only noise.

11. (Original) A decoder as in claim 10, where the decoder comprises one of a LogMap or a MaxLogMap turbo decoder.

12. (Currently Amended) A decoder as in claim 10, where

during rounds of decoding ~~rounds~~ absolute values of extrinsic values tend to increase, provided that the input signal contains a valid code word, as opposed to when the input signal contains only noise, and where

said means for determining accurately distinguishes a valid code word from noise, and also obtains information that is indicative of the quality of the decoding process.

13. (Currently Amended) A decoder ~~as in claim 10,~~ having an input for coupling to a signal received through a channel, comprising:

means for monitoring, during operation of the decoder on a signal received from ~~a~~ the channel, the value of at least one extrinsic value; and

means, responsive to the monitored at least one value, for determining whether the signal comprises a valid code word or comprises only noise, where

the decoder comprises a turbo decoder, and where the turbo decoder comprises a detector that considers at least one inequality where:

1) $SE_AE_B(L) \leq const1 \text{ X } SE_AE_B(1)$;

2) $SE_AE_B(L) \leq const2 \text{ X } S$;

3) $SE_A(L) \leq const3 \text{ X } S$;

4) $SE_B(L) \leq const3 \text{ X } S$;

5) $E_A(L) \leq const4 \text{ X } E_A(1)$;

6) $E_B(L) \leq const4 \text{ X } E_B(1)$;

7) $E_AE_B(L) \leq const4 \text{ X } E_AE_B(1)$;

8) $E_A(L) \leq const5 \text{ X } S$; and

9) $E_B(L) \leq const5 \text{ X } S$;

where L represents the number of a last turbo decoder round, where $\leq$ represents 'less than or equal to', where X represents times (multiplication), and where const represents a constant value, where if any one of inequalities are found to be true, then it is determined that the received signal does not comprise a valid turbo coded code word, and where

$SE_AE_B(n)$ denotes a sum of absolute values of soft values after an n^{th} turbo round;

$E_AE_B(n)$ denotes a sum of absolute values of sums of extrinsic values of A-parities and extrinsic values of B-parities after an n^{th} turbo round;

$E_A(n)$ denotes a sum of absolute values of extrinsic values of A-parities after the n^{th} turbo round;

$E_B(n)$ denotes a sum of absolute values of extrinsic values of B-parities after the n^{th} turbo round;

$SE_A(n)$ denotes a sum of absolute values of sums of systematic samples and extrinsic values of A-parities after the n^{th} turbo round;

$SE_B(n)$ denotes a sum of absolute values of sums of systematic samples and extrinsic values of B-parities after the n^{th} turbo round; and

S denotes a sum of absolute values of systematic samples.

14. (Original) A decoder as in claim 13, where a sum of absolute values of systematic samples is at least one of replaced and complemented by a sum of absolute values of parity samples.

15. (Original) A decoder as in claim 13, where const1 equals about 1.125, where const2 equals about 1.5, where const3 equals about 1.25, where const4 equals about 2, and where const5 equals

about 0.8.

16. (Original) A decoder as in claim 13, where the threshold constants const1, const2, const3, const4, and const5 are greater when applying an inequality as a quality detector than as a noise/signal detector.

17. (Currently Amended) A decoder as in claim 10, where said decoder comprises part of a wideband code division multiple access (WCDMA) ~~WCDMA~~ user equipment.

18. (Original) A decoder as in claim 13, where the value of const is a function of a coding rate.

19. (New) An integrated circuit, comprising circuitry forming at least a portion of a turbo decoder having an input for coupling to a signal received through a channel, said circuitry operable for monitoring, during operation of the decoder on a signal received from the channel, the value of at least one extrinsic value for use in determining whether the signal comprises a valid code word or comprises only noise.

20. (New) The integrated circuit of claim 19, where the turbo decoder comprises one of a LogMap or a MaxLogMap turbo decoder.

21. (New) The integrated circuit of claim 19, where during rounds of decoding absolute values of extrinsic values tend to increase, provided that the input signal contains a valid code word, as opposed to when the input signal contains only noise, and the circuitry is further operable to obtain information that is indicative of the quality of the decoding process.

22. (New) The integrated circuit of claim 19, where the circuitry comprises a detector that considers a relationship between at least one pair of absolute values of at least one of extrinsic values and systematic samples.

23. (New) A radio frequency receiver, comprising circuitry forming at least a portion of a turbo

decoder having an input for coupling to a signal received through a channel, said circuitry operable for monitoring, during operation of the decoder on a signal received from the channel, the value of at least one extrinsic value for use in determining whether the signal comprises a valid code word or comprises only noise.

24. (New) The radio frequency receiver of claim 23, where the turbo decoder comprises one of a LogMap or a MaxLogMap turbo decoder.

25. (New) The radio frequency receiver of claim 23, where during rounds of decoding absolute values of extrinsic values tend to increase, provided that the input signal contains a valid code word, as opposed to when the input signal contains only noise, and the circuitry is further operable to obtain information that is indicative of the quality of the decoding process.

26. (New) The radio frequency receiver of claim 23, where the circuitry comprises a detector that considers a relationship between at least one pair of absolute values of at least one of extrinsic values and systematic samples.

27. (New) The radio frequency receiver of claim 23, comprising a part of a cellular telephone.

28. (New) A decoder having an input for coupling to a signal received through a channel, comprising a unit operable at least in response to receipt of a signal from the channel to determine, responsive to a monitored at least one value, whether the signal comprises a valid code word to be decoded or comprises only noise.

29. (New) The decoder as in claim 28, operable as a LogMap or a MaxLogMap turbo decoder.